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Hazardous Materials



- Asbestos
- Radon
- Mold
- Underground Storage Tanks

Asbestos Containing Materials

- ▶ Floor tiles
- ▶ Siding and roofing, panels around wood stoves
- ▶ Insulation: pipe, furnace door gaskets, wall and attic, houses built between 1930 thru 1950
- ▶ Artificial ashes and embers in gas fireplaces
- ▶ Wall joint compound banned in 1977
- ▶ Glazing and Caulking

Where Can I Find Asbestos?

When Can It Be A Problem?

- ▶ Most products made today do not contain asbestos. Those few products made which still contain asbestos that could be inhaled are required to be labeled as such. However, until the 1970s, many types of building products and insulation materials used in homes contained asbestos. Common products that might have contained asbestos in the past, and conditions which may release fibers, include:
- ▶ STEAM PIPES, BOILERS, and FURNACE DUCTS insulated with an asbestos blanket or asbestos paper tape. These materials may release asbestos fibers if damaged, repaired, or removed improperly.
- ▶ RESILIENT FLOOR TILES (vinyl asbestos, asphalt, and rubber), the backing on VINYL SHEET FLOORING, and ADHESIVES used for installing floor tile. Sanding tiles can release fibers. So may scraping or sanding the backing of sheet flooring during removal.
- ▶ CEMENT SHEET, MILLBOARD, and PAPER used as insulation around furnaces and wood burning stoves. Repairing or removing appliances may release asbestos fibers. So may cutting, tearing, sanding, drilling, or sawing insulation.

Where Can I Find Asbestos?

When Can It Be A Problem?

- ▶ **DOOR GASKETS** in furnaces, wood stoves, and coal stoves. Worn seals can release asbestos fibers during use.
- ▶ **SOUNDPROOFING OR DECORATIVE MATERIAL** sprayed on walls and ceilings. Loose, crumbly, or water-damaged material may release fibers. So will sanding, drilling, or scraping the material.
- ▶ **PATCHING AND JOINT COMPOUNDS** for walls and ceilings, and **TEXTURED PAINTS**. Sanding, scraping, or drilling these surfaces may release asbestos.
- ▶ **ASBESTOS CEMENT ROOFING, SHINGLES, and SIDING**. These products are not likely to release asbestos fibers unless sawed, dilled, or cut.
- ▶ **ARTIFICIAL ASHES AND EMBERS** sold for use in gas-fired fireplaces. Also, other older household products such as **FIREPROOF GLOVES, STOVE-TOP PADS, IRONING BOARD COVERS,** and certain **HAIRDRYERS**.
- ▶ **AUTOMOBILE BRAKE PADS AND LININGS, CLUTCH FACINGS, and GASKETS**.

Asbestos pipe insulation



Asbestos Siding



When to test for Asbestos?

- ▶ Demolition requires certified Asbestos inspection
- ▶ Suspected materials are present
- ▶ Rehab work will disturb a suspected ACM
- ▶ Contractor uncovers a previously hidden hazard

Testing by certified firm

SanAir ID Number

15012706

FINAL REPORT

Name:

Address:

Project Number:

P.O. Number:

Project Name: AHIP

Collected Date: 5/7/2015

Received Date: 5/8/2015 11:55:00 AM

Report Date: 5/11/2015 1:05:41 PM

Analyst:

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
1270-1 / 15012706-001 Window Glaze	Grey Non-Fibrous Homogeneous	2% Wollastonite	98% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
1270-2 / 15012706-002 Window Glaze	Grey Non-Fibrous Homogeneous	2% Wollastonite	98% Other	None Detected

SanAir ID / Description	Stereoscopic Appearance	Components		Asbestos Fibers
		% Fibrous	% Non-Fibrous	
1270-3 / 15012706-003 Window Glaze	Grey Non-Fibrous Homogeneous	2% Wollastonite	98% Other	None Detected

Lab Report of suspected ACMs

PLM Bulk Asbestos Report

Date Received 10/10/14 AmeriSci Job # 114101380
Date Examined 10/10/14 P.O. #
Page 1 of 2
RE: ☐ Orchard Drive Basement

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
OD10-9-14-1 1 Location: 9 th Floor Tile and Mastic In Den	114101380-01L1	Yes	5 % (by CVES) by J. Samuel Baird on 10/10/14
Analyst Description: Brown, Heterogeneous, Non-Fibrous, Floor Tile Asbestos Types: Chrysotile 5.0 % Other Material: Non-fibrous 95 %			
OD10-9-14-1 1 Location: 9 th Floor Tile and Mastic In Den	114101380-01L2	No	NAD (by CVES) by J. Samuel Baird on 10/10/14
Analyst Description: Black, Heterogeneous, Non-Fibrous, Mastic Asbestos Types: Other Material: Non-fibrous 100 %			
OD10-9-14-2 1 Location: 9 th Floor Tile and Mastic In Den	114101380-02L1		NA/PS
Analyst Description: Bulk Material Asbestos Types: Other Material:			
OD10-9-14-2 1 Location: 9 th Floor Tile and Mastic In Den	114101380-02L2	No	NAD (by CVES) by J. Samuel Baird on 10/10/14
Analyst Description: Black, Heterogeneous, Non-Fibrous, Mastic Asbestos Types: Other Material: Non-fibrous 100 %			
OD10-9-14-3 2 Location: Drywall and Joint Compound Ceiling	114101380-03.1	No	NAD (by CVES) by J. Samuel Baird on 10/10/14
Analyst Description: White, Heterogeneous, Non-Fibrous, Drywall Asbestos Types: Other Material: Cellulose 5 %, Non-fibrous 95 %			

See Reporting notes on last page.

Hire an Asbestos Abatement Firm

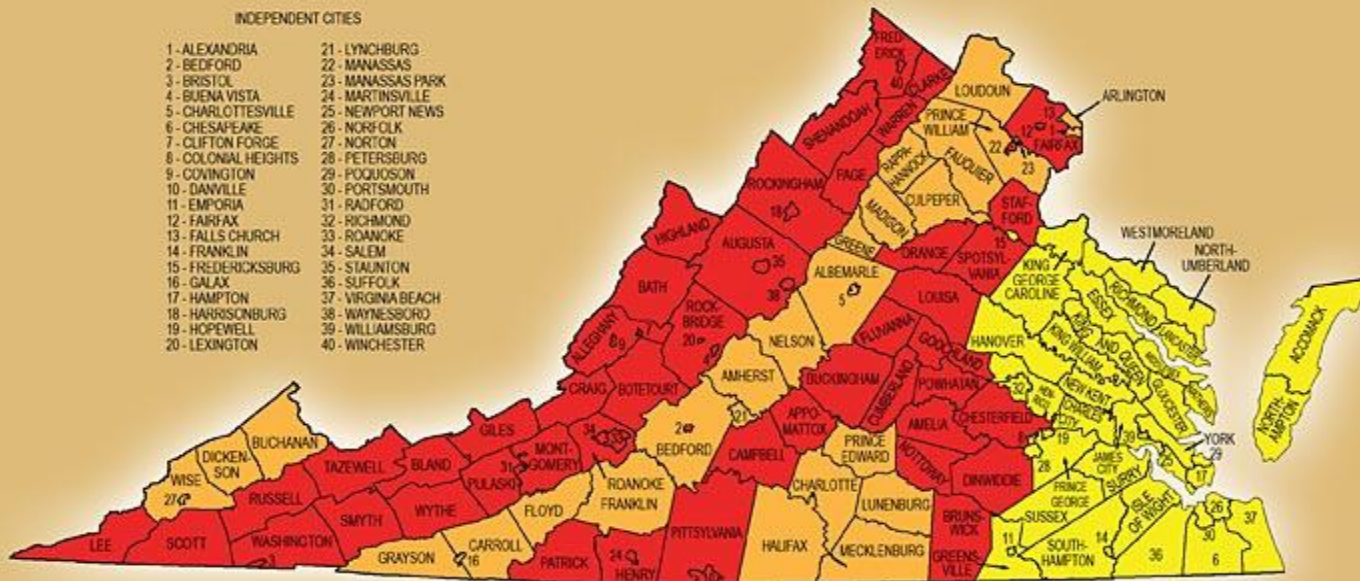
- ▶ Abate all ACMs if unit is being demolished
- ▶ Abate only ACMs being disturbed by rehab activities
- ▶ Abate hazardous friable ACM

RADON

RADON MAP of VIRGINIA

INDEPENDENT CITIES

- | | |
|----------------------|---------------------|
| 1 - ALEXANDRIA | 21 - LYNCHBURG |
| 2 - BEDFORD | 22 - MANASSAS |
| 3 - BRISTOL | 23 - MANASSAS PARK |
| 4 - BUENA VISTA | 24 - MARTINSVILLE |
| 5 - CHARLOTTESVILLE | 25 - NEWPORT NEWS |
| 6 - CHESAPEAKE | 26 - NORFOLK |
| 7 - CLIFTON FORGE | 27 - NORTON |
| 8 - COLONIAL HEIGHTS | 28 - PETERSBURG |
| 9 - COVINGTON | 29 - POQUOSON |
| 10 - DANVILLE | 30 - PORTSMOUTH |
| 11 - EMPORIA | 31 - RADFORD |
| 12 - FAIRFAX | 32 - RICHMOND |
| 13 - FALLS CHURCH | 33 - ROANOKE |
| 14 - FRANKLIN | 34 - SALEM |
| 15 - FREDERICKSBURG | 35 - STAUNTON |
| 16 - GALAX | 36 - SUFFOLK |
| 17 - HAMPTON | 37 - VIRGINIA BEACH |
| 18 - HARRISONBURG | 38 - WILLIAMSBURG |
| 19 - HOPEWELL | 40 - WINCHESTER |



EMSL ANALYTICAL, INC.

1-800-220-3675 www.EMSL.com

Nationwide Radon Testing Laboratory

LEGEND

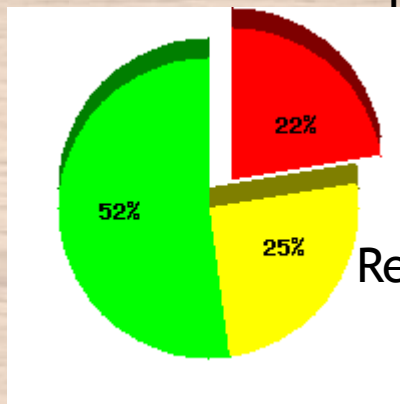
- Zone 1 counties have a predicted average indoor radon screening level greater than 4 pCi/L (pico curies per liter) (red zones)
- Zone 2 counties have a predicted average indoor radon screening level between 2 and 4 pCi/L (orange zones)
- Zone 3 counties have a predicted average indoor radon screening level less than 2 pCi/L (yellow zones)

Albemarle County Radon Information

- ▶ STATE RADON OFFICER Ryan Paris
(804) 864-8161
Virginia Dept. of Health, Radiological Health
James Madison Bldg., 7th Fl, 109 Governor St Rm 730
Richmond VA, 23219
- ▶ The average national indoor radon level is 1.3 pCi/L. The average indoor radon levels of Albemarle County, as determined by radon test results from [Air Chek, Inc](http://www.airchek.com), is 3 pCi/L
- ▶ <http://county-radon.info/VA/Albemarle.html>

Results 4 pCi/L and above

Results under 2 pCi/L



Results between 2 and 3.9 pCi/L

Health Effects

- ▶ Over time, exposure to **radon** can cause lung cancer.
- ▶ **Radon** causes about 21,000 lung cancer deaths each year in the U.S. It is the second leading cause of lung cancer, after tobacco smoking.
- ▶ People who smoke have an even higher **risk** of lung cancer from **radon** exposure than people who don't smoke.

Radon Lab Report

- ▶ Obtain at least two postage paid testing canisters or use radon machine from home inspector for hourly sampling.
- ▶ Place in living area for recommended period of time
- ▶ Mail to lab and obtain report, ask for faxed results for faster reporting.
- ▶ Plan a mitigation strategy with licensed radon contractor if report shows radon greater than or equal to 4.0 pCi/L

Lab report

December 3, 2014

** LABORATORY ANALYSIS REPORT **

Pg 1 of 1

Attention: P6920 / TIM LEROUX

Kit #: 6316546 Result: 2.1 ± 0.3 pCi/l

Location: Basement

[REDACTED]
1207 Orchard Dr

Crozet, VA 22932

Analysis Note :

Analyzed : 2014-11-22 at 12:00 pm

Started : 2014-11-13 at 3:00 am

Ended : 2014-11-19 at 9:00 am

Hours/MST% : 150 hours 7.5% 70°F

Kit #: 6316548 Result: 5.7 ± 0.4 pCi/l

Location: Basement

[REDACTED]
1207 Orchard Dr

Crozet, VA 22932

Analysis Note :

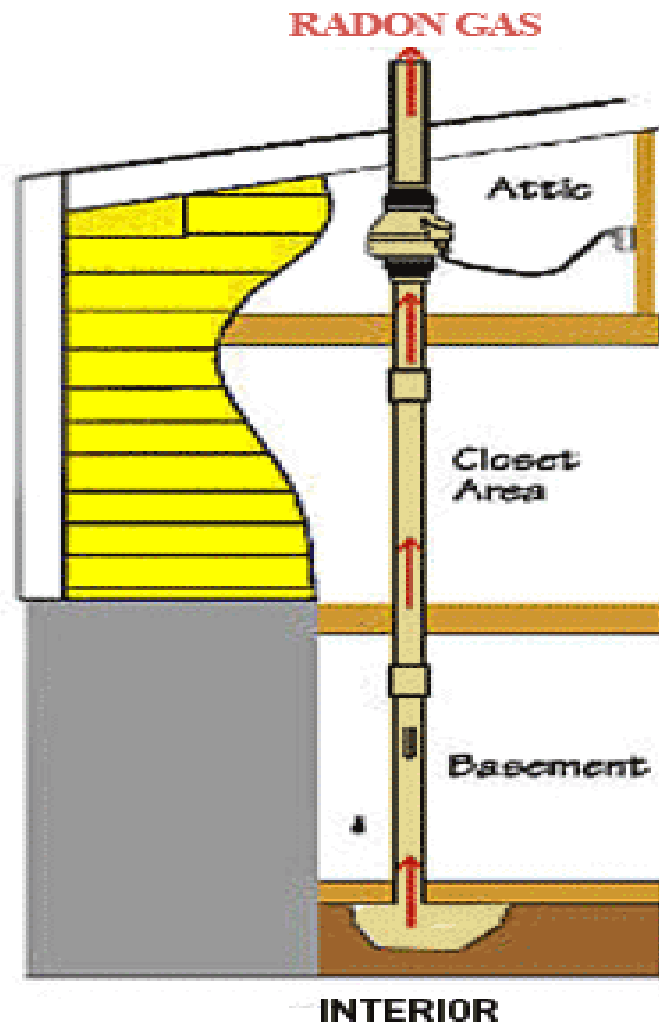
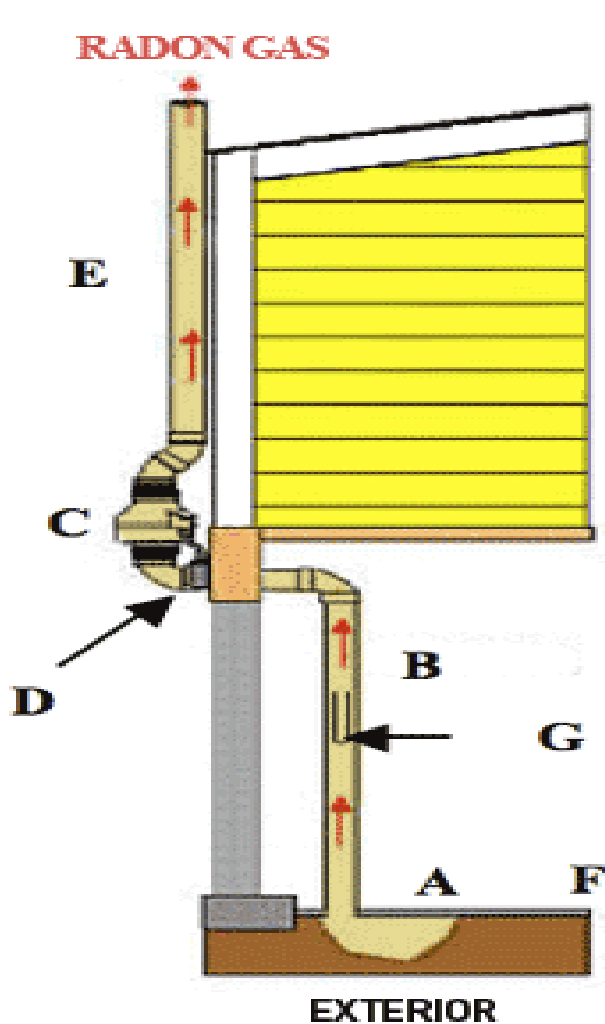
Analyzed : 2014-11-22 at 12:00 pm

Started : 2014-11-13 at 3:00 pm

Ended : 2014-11-19 at 9:00 am

Hours/MST% : 138 hours 9.4% 70°F

Costs \$950 to \$2500

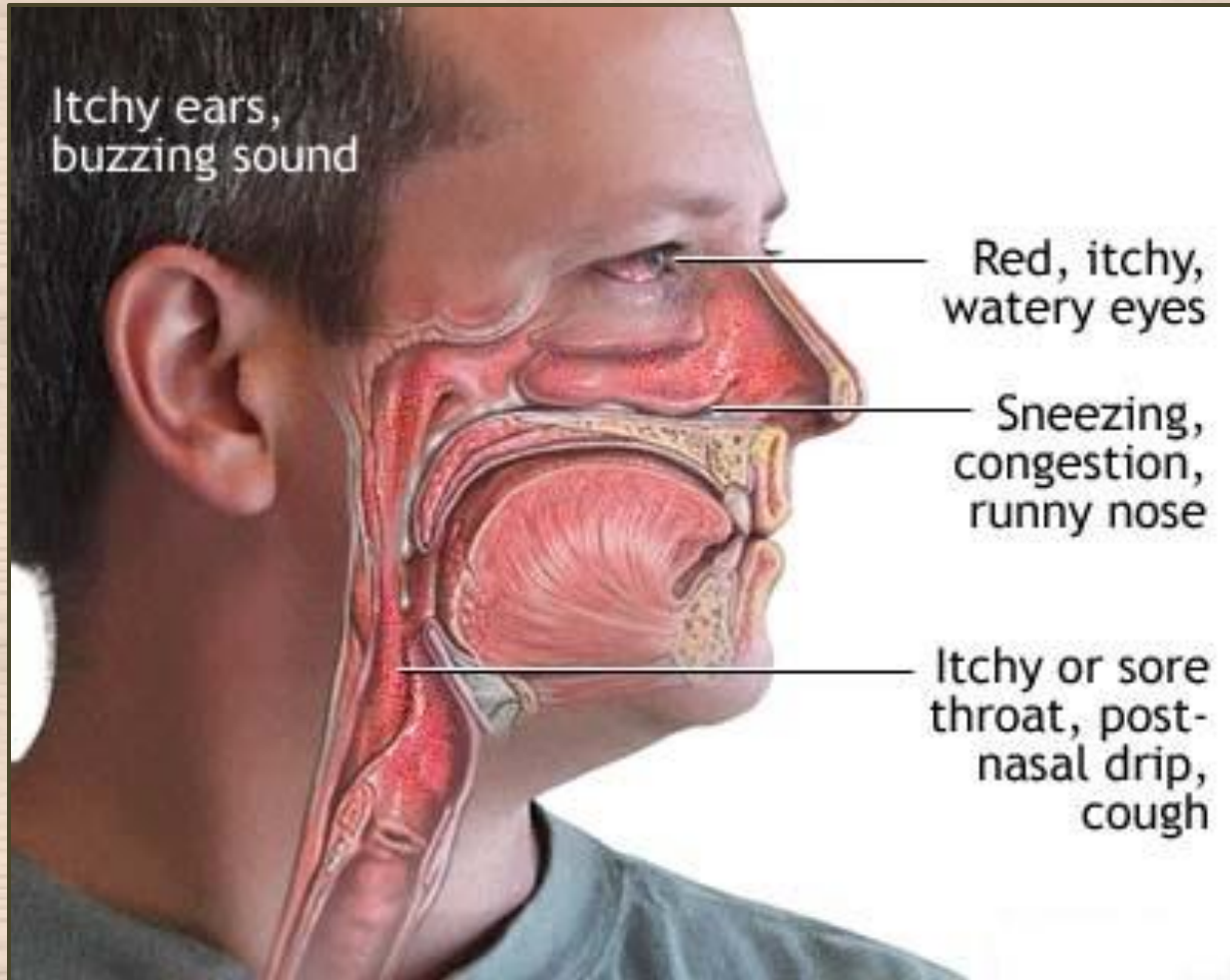


Mold

Must remove source of water infiltration before rehab or remediation activities

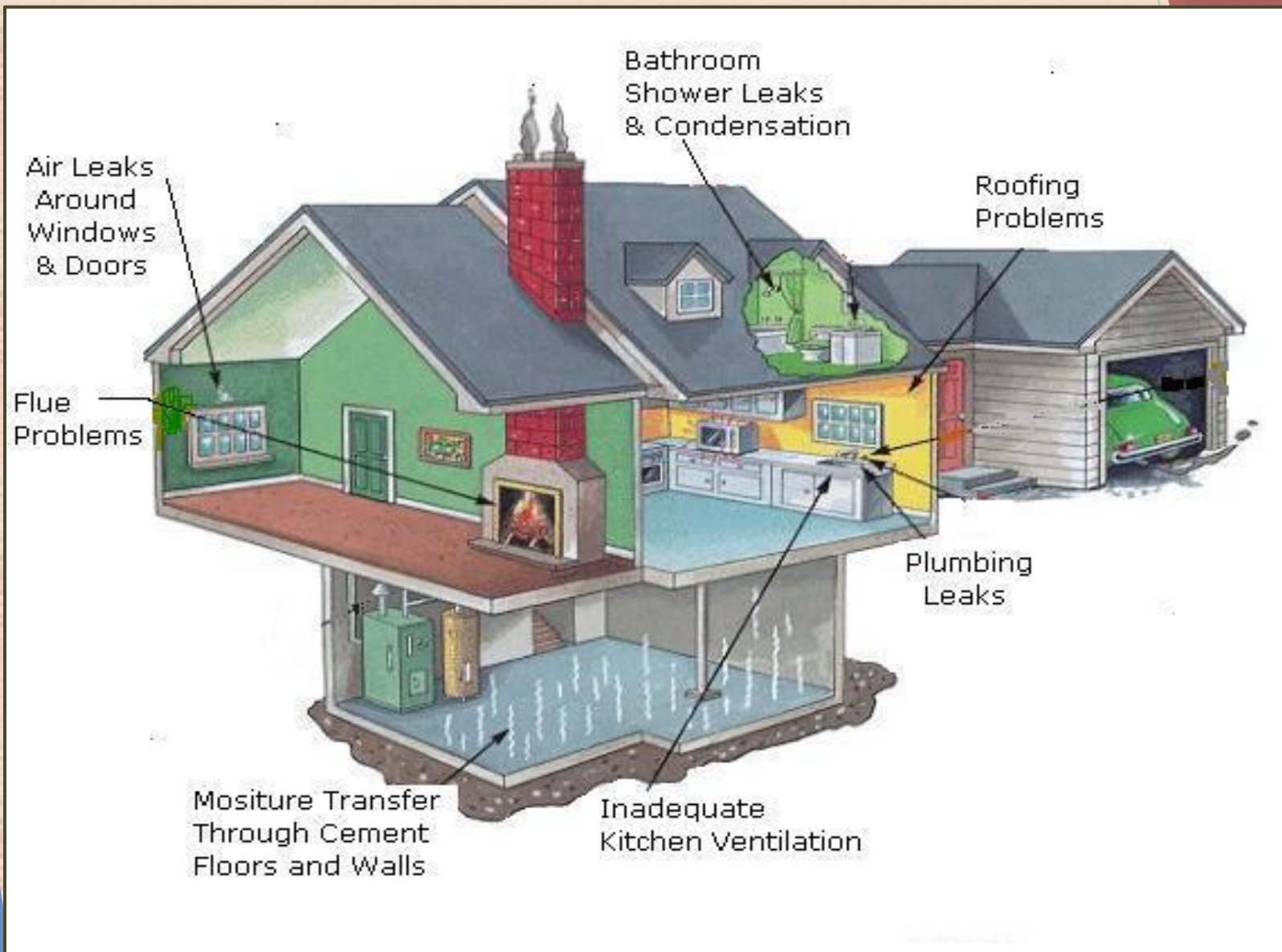


Can mold cause health problems?



Deadly mycotoxins can cross into the brain from the nose and eyes. *Aspergillus* and *Stachybotrys* are some of the most toxic.

Common causes of moisture intrusion



Mold Cleanup Tips

- ▶ If the mold infestation covers 100 square feet or less in total area, the EPA says that property owners can generally handle the project themselves. For larger areas, though, mold remediation is best left to the professionals. Additionally, if mold is found in more than one area of the home, it is best to leave the cleanup work to a professional mold removal crew.
- ▶ Moisture is the key to mold growth. Fix any plumbing leaks or other sources of moisture as early on in the process as possible. Dry everything completely.
- ▶ Use a solution of detergent and water to scrub away mold on hard surfaces.

Mold Cleanup Tips

- ▶ Drywall, carpet and other porous materials are often irreparable once they are moldy. Throw away and replace these materials.
- ▶ Wear gloves and goggles and use a respirator to avoid breathing airborne mold. An N-95 respirator, available at most hardware stores for between \$12 and \$25, is recommended for those performing mold remediation.
- ▶ Remediation by qualified firms completely removes mold and contaminated materials. There should be no visible mold and no odor of mold. After cleanup, the site or sites should not show signs of moisture accumulation or mold growth.

Labor and Material Costs

- ▶ Labor costs can make up a large part of the total price of mold remediation. Qualified removal companies make use of skilled labor and expensive equipment. A High Efficiency Particulate Air (HEPA) vacuum and air filtration, for example, are expensive pieces of machinery that makes use of special filters and powerful suction to remove mold from materials and air. Workers operating HEPA vacuums must wear mold-proof suits and face masks and must be specially-trained.
- ▶ Material costs will vary widely from one project to another. In some cases, mold may have eaten away lumber, sheet rock, insulation and floor boards. In other cases, it may be present only in carpet or small areas of walls and ceilings. Thus, material costs vary from less than a hundred dollars on the low end to tens-of-thousands of dollars for the remediation of a flooded basement, for example.
- ▶ Those who are attempting to take the project on themselves will probably want to rent or purchase a wet vacuum to pull moisture from carpet and wood. They can be rented for around \$30 per day or can be purchased for between \$80 and \$200. For very small mold remediation projects, only water and detergent are required.

Labor and Material Costs

- ▶ If severe mold infestation and severe health risks are suspected mold samples can be sent to the lab by a qualified mold inspector.
- ▶ http://www.dpor.virginia.gov/Boards/ALHI/Mold_FAQ/ As of July 1, 2012, no state credentials are required for mold remediation and inspection activities.
- ▶ Mold remediation and inspection reverted to being an un-regulated profession—as it was before July 1, 2011, when the licensure program established by the 2009 General Assembly first went into effect.
- ▶ The regulatory board name returned to the Board for Asbestos, Lead, and Home Inspectors.
- ▶ After a comprehensive review across state government, the McDonnell Commission on Government Reform and Restructuring recommended de-regulation of the mold remediation and inspection profession.
- ▶ Unlike asbestos and lead abatement, the Environmental Protection Agency (EPA) does not regulate mold remediation and inspection. In light of the absence of national oversight and standards, the General Assembly determined Virginia's regulatory program is unnecessary and endorsed the Commission's de-regulation recommendation.

Underground Storage Tanks (UST)

Is your fuel oil leaking into the ground?



Identify the Age of the Tank

- Interview client
- Assess age of the home
- Assess age of the HVAC system
- Most USTs will leak eventually

Identify the location



Fill Tube



Alternate fuel source for furnace

This UST was abandoned. After inspection that fill tube was opened; uncap, probe with rod, sand can be felt inside the tank.



When to inspect?

- ▶ Client complains of: oil smell in water, furnace firing issues, furnace service personnel recommend replacing the tank, water in the tank.
- ▶ Client concerned about liability associated with UST
- ▶ Rehab specialist identifies hazard and has funding to assess and replace tank
- ▶ Age of tank indicates possible release.
- ▶ Environmental Safety

Above-ground Storage Tank on top of UST





How many wells can you find?





This job was a suspected release

- ▶ VA DEQ contacted immediately
- ▶ Assigned to engineering firm for evaluation and soil sampling.
- ▶ VA DEQ has a residential UST fund \$500 deductible for client/rehab job
- ▶ The Virginia Petroleum Storage Tank Fund (Fund) was created, in part, to assist Virginia's owners and operators in meeting the federal assurance requirements. The Fund may be used by owners and operators to meet the majority of the assurance requirement, with owners and operators being responsible for demonstrating financial responsibility for a small portion of the federally mandated per occurrence requirement.

This job was a suspected release

- ▶ In the event of a release, owners and operators of petroleum tanks in Virginia must meet a FR requirement for each occurrence as their share of the cost of corrective action/cleanup or third party action costs (in the case of regulated USTs). Once the FR obligation has been met, the Fund will begin to reimburse for reasonable, necessary and otherwise eligible corrective action and third party liability (if applicable) costs.

Table 1 : Financial Responsibility Access and Demonstration Requirements by UST Tank Type

<http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/PetroleumProgram/StorageTanks/UndergroundStorageTanks/USTFinancialResponsibility.aspx>

FR Requirement			
Tank Type	Tank Definition	For Fund Access	FR Requirement For Demonstration
Regulated UST	tanks and/or piping more than 10% underground	See Table 2	See Table 2
Exempt UST 1	non-commercial (farm, residential) less than 1,100 gallon	\$500 (No third party)	n/a
Exempt UST 2	heating oil USTs	\$500 (No third party)	n/a
Regulated AST Facility	greater than 25,000 gallon storage capacity	AST Access Table (No third party)	n/a at this time
Unregulated AST Facility	less than 25,000 gallon storage capacity	AST Access Table (No third party)	n/a
Small Heating Oil AST	5,000 gallon or less heating oil AST	\$500 No third party)	n/a

Residential UST are exempt unless there is a release

- ▶ What analyses are required when closing a home heating oil tank?
- ▶ <http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/PetroleumProgram/FrequentlyAskedQuestions.aspx>

Home heating oil tanks are exempt from the UST Technical Regulation and persons closing/removing these tanks are not required by DEQ to collect samples during tank closure/removal. Please be aware the local Building Inspector's office or Fire Marshall's office might require closure/removal sampling and should be contacted for their requirements prior to closing/removing a home heating oil UST. If samples are collected and evidence of a release of heating oil is found, however, the tank operator is required to report the release to DEQ. Table 5-4 in the Storage Tank Program Technical Manual contains a list of analytical methods that are considered "approved" by DEQ in the event that samples are taken. Additional questions about heating oil tanks can be found below in the section "Heating Oil Tank Frequently Asked Questions".

- ▶ If sampling is required assign it to an engineering firm

AHIP assigned these jobs to a Consulting Engineer (CE)

- ▶ Roanoke, Winchester, Fredericksburg, Charlottesville, Winchester, VA Beach, Williamsburg, Richmond, Manassas, Chantilly, Lynchburg offices.
- ▶ CE took hand augured soil samples and well water samples to lab
- ▶ VADEQ notified of release in soil only, none found in water. (Homeowner never believed that since the water was 'greasy')
- ▶ VADEQ sends recommendations for remediation and CE submits pre-approved construction plan and costs back to VADEQ
- ▶ Residential UST Fund \$500 deductible covers: sampling, labs, long term well water sampling and labs, tank removal, soil removal, hazmat soil hauling, dumping, oil removal, tank cleaning, grading, seeding.
- ▶ Does not cover costs of new tank and hook up nor dumping/recycling of the cleaned removed tank. (Although on this job there was a new tank and CE did remove the tank with out charge), New single wall 250 gal. tank is about \$700 installed.

Lab Reports

ANALYTICAL RESULTS

Project:

Pace Project No.: 92250851

Sample: SHIFFLETT UST Lab ID: 92250851001 Collected: 05/20/15 10:45 Received: 05/21/15 10:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel		Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546						
Diesel Range Organics(C10-C28)	15200	mg/kg	318	50	05/22/15 08:49	05/26/15 12:44		
Surrogates								
n-Pentacosane (S)	0	%	41-119	50	05/22/15 08:49	05/26/15 12:44	629-99-2	S4
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	21.5	%	0.10	1		05/26/15 12:15		

Inspection Reports

ANALYTICAL RESULTS

Project:

Pace Project No.: 92250853

Sample: MALONE UST Lab ID: 92250853001 Collected: 05/20/15 09:45 Received: 05/21/15 10:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Range Organics(C10-C28)	196	mg/kg	6.9	1	05/22/15 08:49	05/25/15 23:13		
Surrogates								
n-Pentacosane (S)	91	%	41-119	1	05/22/15 08:49	05/25/15 23:13	629-99-2	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	27.5	%	0.10	1		05/26/15 12:16		

Old tank removed and existing tank reinstalled





COMMONWEALTH of VIRGINIA

**DEPARTMENT OF ENVIRONMENTAL QUALITY
VALLEY REGIONAL OFFICE**

Douglas W. Domenach
Secretary of Natural Resources

4411 Early Road, P.O. Box 3000, Harrisonburg, Virginia 22801
(540) 574-7800 Fax (540) 574-7878
www.deq.virginia.gov

David K. Paylor
Director

Amy Thatcher Owens
Regional Director

August 18, 2011

[REDACTED]
Keswick, VA 22947

Re: Petroleum Release: [REDACTED] Charlottesville
Decision to Close Case, DEQ Tracking Number: PC# 11-6057

Dear Ms. T [REDACTED]

Based on our findings during a DEQ site inspection and a review of the Limited Site Characterization Report prepared by ECS Mid-Atlantic LLC, this case is considered to be closed, and no further investigation or corrective action is required at this time. Should significant environmental, health or safety problems develop in the future, additional testing and/or corrective action may be required in accordance with applicable State and Federal regulations.

Virginia law prohibits the payment of corrective action and third party liability reimbursement claims that are filed more than two years after DEQ closes a case. All claims for this release must be received by DEQ no later than August 18, 2013 in order to be eligible for reimbursement.

Thank you for your cooperation. If you have any questions or if we can be of any assistance, please contact Greg Clark at (540) 574-7911.

Sincerely,

R. McChesney Sterrett, CPG
Petroleum Program Manager

cc: Petroleum Remediation File
Len Wishart – Albemarle County Housing Improvement Program (via email)
Garnett Williams – ECS Mid-Atlantic LLC (via email)

Questions?

